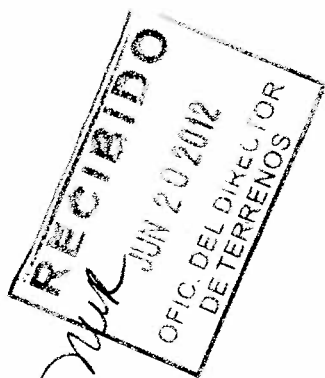


**LANDFILL GROUNDWATER MONITORING WORK PLAN  
FOR THE SANTA ISABEL MUNICIPAL  
SOLID WASTE LANDFILL  
SANTA ISABEL, PUERTO RICO**



Prepared for:  
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Prepared By:  
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**FINAL WORK PLAN**

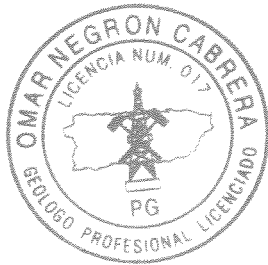


Groundwater & Environmental Services of Puerto Rico, LLC

LANDFILL GAS TECHNOLOGIES CORP.



**LANDFILL GROUNDWATER MONITORING WORK PLAN  
FOR THE SANTA ISABEL MUNICIPAL  
SOLID WASTE LANDFILL  
SANTA ISABEL, PUERTO RICO**



A handwritten signature in black ink, appearing to read "Omar Negrón", written over a horizontal line.

Omar Negrón Cabrera, PG  
Senior Project Manager

A handwritten signature in black ink, appearing to read "Isidro M. Perera Armas", written over a horizontal line.

Isidro M. Perera Armas  
Site Operations Manager

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Groundwater & Environmental Services of Puerto Rico, LLC

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## SUMMARY

The Municipality of Santa Isabel owns and operates a non-hazardous (domestic waste only) Solid Waste Non Hazardous Landfill in the south west of the island of Puerto Rico. In order to comply with state regulations it's presenting to the Environmental Quality Board (EQB) a Landfill Groundwater Monitoring Plan (LFGWMP) to comply with the Subpart C of the Subtitle D regulations (40 CFR, Part 258 and the Regulations for Non-Hazardous Waste Management Part IV-C), Rule 551-561. The Landfill occupies approximately 15 cuerdas.

The landfill is located on the southern coast of the island of Puerto Rico at approximate latitude 18°00'47.40"N and longitude 66°20'22.03W with approximate site elevation of 257 feet above mean sea level. The site is located at Barrio Penuelas, Sector Jauca 2, State Road PR-523, KM 4.0, Santa Isabel, Puerto Rico.

The Groundwater Monitoring Plan presented herein will monitor semiannually the groundwater flow of the landfill in three locations, one upgradient well proposed at the north boundary of the landfill (GWMW-1) and two existing downgradient wells (GWMW-2 and GWMW-3) which are located downgradient of the landfill. Static water level was observed at 44 feet below ground level on two downgradient wells. The wells will be sampled for Volatile organic compounds (VOC's) as listed in the EPA Method 8260 and for metals as listed in EPA Method 6010/7000. QA/QC samples will be collected and water samples with duplicates will be labeled with the suffix "D".

The selected field team for conducting the field activities will be trained personnel of GESPR following this plan and the HASP specifically for the site. GESPR will collect and deliver to PACE the samples via designated shuttle. All samples will be collected as per the herein described activities.

The first event will be schedule for June 2012 and a second one in October 2012.



Groundwater & Environmental Services of Puerto Rico, LLC

## **1.0 INTRODUCTION**

### **1.1 General**

This landfill groundwater monitoring plan (LGWMP) was prepared pursuant to Subpart C of the Subtitle D regulations (40 CFR, Part 258 and the Regulations for Non-Hazardous Waste Management Part IV-C), Rule 551-561. The LGWMP is for the Santa Isabel Landfill which is a municipally-owned and operated by CONWASTE waste management facility, situated in the south western region of Puerto Rico.

The existing landfill accepts only domestic waste. Incoming waste consists primarily of municipal solid waste, yard waste, and construction debris. The average filling rate of the landfill was estimated to be 465 cubic yards of waste per week. The Landfill occupies 15 cuerdas.

### **1.2 Site Location**

The landfill is located on the southern region of the island of Puerto Rico at approximate 18°00'47.40"N and longitude 66°20'22.03W with approximate site elevation of 257 feet above mean sea level. The site is located on Barrio Penuelas, Sector Jauca 2, State Road PR-523, KM 4.0, Santa Isabel, Puerto Rico. **Figure 1** presents the location of the landfill in a topographic map in 1:20,000 scale and a top view of the landfill in an aerial photograph (not to scale).

### **1.3 Purpose and Scope**

The purpose of this **LGWSMP** is to effectively monitor the groundwater beneath the landfill. The Landfill groundwater monitoring network is comprised of 3 downgradient wells, and were assigned temporary letters A, B, and C, as presented in **Figure 2**. Based on the findings of our site visit last week, 2 downgradient (A and B) wells were observed with water at 42 feet below ground level and total well depth of approximate 77 feet, the third one (C) was found with an obstruction at 32 feet and no water observed, this well is proposed to be assessed later this year. Also, no upgradient well was observed, therefore, one upgradient well is being proposed north of the landfill, as presented in Figure 2. This work plan will be accomplished by selecting one (1) upgradient (to be drilled) and two (2) downgradient (a and b) wells. The monitoring it's proposed to meet certain goals, including effectively sampling the wells, analysis procedures and to conduct all activities in a safe environment. This work plan presents the procedures for:

- Sampling and analytical procedures for collected water samples from the groundwater monitoring network;
- Field Logs for collecting water quality parameters;
- Description of data management procedures for the including laboratory Quality Assurance/Quality Control (QA/QC) procedures and statistical evaluations; and
- A Health and Safety Plan for all activities.

## **2.0 GROUNDWATER MONITORING NETWORK**

### **2.1 Overview**

This section of the LGWMP provides a methodology for detecting the migration, if any, of landfill leachate liquids into the first encountered underground waters. Information gathered on the semi annual basis from existing monitoring wells and the one proposed on the north (upgradient well) located along the site boundary will allow for an evaluation of the upgradient and down gradient water quality and determine if further sampling or delineation is needed. The monitoring will be conducted by using three existing monitoring wells.

For the Santa Isabel Landfill, monitoring wells are required around the perimeter of the facility. The location, depth and type of well are provided in the following sections.

Groundwater monitoring involves the following tasks:

- Measuring the static water level using monitoring wells;
- Developing the wells;
- Collecting water samples; and,
- Chemical analysis.

### **2.2 Monitoring Constituents**

Each well of the sampling network will be monitored for volatile organic compounds and metals listed in Appendix I of the Non-Hazardous Solid Waste Regulation, Rule 708 (**Table 1**). Analytical Methods to be used are described below.

### **2.3 Analytical methods**

The water samples will be sending to the laboratory and analyzed for volatiles following USEPA Methods **8260** for volatile compounds and **6010/7000** for metal compounds.

### **2.4 Schedule**

The monitoring network will be sampled twice in a semi-annual event as follows see **Table 2** for details:

- April
- October

## 2.5 Monitoring Locations and Methods

### 2.5.1 Along Site Property Boundary

Groundwater monitoring at the site property boundary will be conducted using three (3) permanent water monitoring wells:

- **GWMW-1** (upgradient - proposed on the north)
- **GWMW-2** (downgradient – compliance)
- **GWMW-3** (downgradient – compliance)

The locations of these monitoring network and proposed wells to be sampled are shown in **Figure 2 and 3**, respectively. Selected wells were included based on location, recovery and fast stabilization parameters. Other wells were left only for groundwater levels.

The following subsections describe the procedures to be implemented in sampling of monitoring wells.

#### 2.5.1.1 Initiation of Field Data Records

A Field Data Sheet (**Appendix 1**) to be used for each sampling event is presented for each well. Initial data to be recorded include site and sampling location identification, weather conditions, monitoring well total depth and depth to top of screen, and field data collection methods.

#### 2.5.1.2 Monitoring Well Maintenance Check

A monitoring well maintenance check (**Appendix 2**) that includes visual inspection of the condition of the protective casing and surface seal will be performed. In addition, the monitoring well will be inspected for other signs of damage or unauthorized entry. Each time well monitoring is conducted, the integrity of the monitoring well will be inspected. A record of each inspection will be made, which will be kept on file. During each inspection the following will be noted on the Field Data Sheet:

- Is the monitoring well number clearly labeled on outer casing or lid?
- Are all monitoring wells numbered?
- Is the monitoring well number permanently affixed to monitoring well?
- Is the protective casing intact and not bent or excessively corroded?
- Is the padlock functional?
- Is the inner casing intact?



If any damage or excessive wear to the monitoring well is observed, the monitoring well will be repaired, if possible. If it is not possible to repair the monitoring well and the damage can potentially affect the integrity of well measurements, the monitoring well will be decommissioned and replaced with a new monitoring well.

### **2.5.1.3 Testing Procedures**

The monitoring well will normally be sealed such that it is unvented to the atmosphere. During testing, the presence of combustible gas will be determined first. Then the well will be opened to allow the measurement of the depth to water. Testing will be performed as described below.

Measurements of combustible well within the sealed monitoring well, will be accomplished by attaching a combustible well meter. If the reading is less than five percent methane by volume, the measurement will be recorded on the Field Data Sheet.

## **2.6 Equipment Calibration**

Prior to each monitoring event, all equipment (air and water meters) will be checked for accuracy using calibration solutions of known concentrations. If necessary, the equipment will be adjusted in accordance with the equipment manufacturers' recommended procedures. At a minimum an OVA equipped with a PID and a Combustible Well Meter equipped with (Oxygen, H<sub>2</sub>S, CO and CH<sub>4</sub>) will be used to conduct the air and a YSI well monitoring. Sample of proposed equipment is enclosed as **Appendix 3** and **Appendix 4**. Water Stabilization Criteria is presented in **Table 3**.

The field parameters to be collected from each water volume retrieve from each well will be measured for:

- Temperature
- Specific Conductance
- PH
- Turbidity (NTU)
- DO%
- TDS
- Salinity

Observations of the water sample will also be noted for:

- Color
- Odor

**Appendix 5** presents the YSI calibration manual.

## Recordkeeping and Reporting

All semiannual monitoring records will be maintained in the Landfill Operating Record throughout the active life of the facility and the post-closure period. The monitoring records will include:

- Sampling locations;
- Dates and times;
- Weather conditions, including temperature and barometric pressure;
- Weather data sources (e.g., NOAA, on-site metered station, local radio station);
- Conditions of monitoring wells;
- Depths to water (if any);
- Combustible well concentrations;
- Field meter calibration data; and
- General comments

## SAMPLING PROCEDURES

### 3.1 Decontamination of Field Equipment

Prior to purging, sampling and/or measuring of any field parameters at a monitoring well, all downhole equipment will be decontaminated to prevent cross contamination. The Purging and sampling will be conducted using an electric submersible pump. Each pump has Teflon dedicated lines for each well. Prior and after sampling the following procedure will be conducted:

- The pump will be washed and brushed with clean potable water with Alconox or similar in a 5 gallon container and allowed to be recirculated for 5 minutes;
- Pump will pass to a second container of 5 gallons filled with deionized water and allowed to recirculate for 2 minutes;
- Allowed to air dry fully on clean plastic sheeting;
- Wrap in aluminum foil (shine side out); and,
- Document decontamination event in the field log.

### Measurement of Groundwater Elevations

Prior to pumping and sampling, the static water level of each well will be measured to the nearest 1mm, and the results will be recorded in the field data sheets. The purpose of this measurement is to allow the evaluation of the rate and direction of groundwater flow each time the ground water is sampled. In order to meet this goal, all the water level measurements must be completed

within a 24 hour period. If its not possible to sample all the wells within one 24-hour period, the water levels in all of the monitoring wells will be measured immediately prior to start the next sampling event.

Water levels will be measured by lowering a cleaned, and properly functioning, water level indicator meter. The static water level depth will be measured and logged in the field data book. Decontamination procedures will be followed identically as those described in the previous section.

### Well Purging

Each well will be purged a minimum of three (3) times the volume of standing water in the well casing. Wells screened in low yielding formations may be purged to dryness if well recharge is insufficient to allow evacuation of 3 well volumes within 3 days. A clean and disposable bailer can be used or an electrical submersible pump during well purging. If well purging is conducted with non disposable equipment, decontamination procedures will follow as in the previous sections.

### 3.4 Field Parameters

Before purging begins and after each purged well volume is removed, a sample of groundwater will be collected in a clean container, preferably a clean glass jar, to collect the following field parameters:

- Temperature
- Specific Conductance
- PH
- Turbidity (NTU)
- DO%
- TDS
- Salinity

All equipment used for the field measurements will be calibrated in a manner that is in strict compliance with manufacturer standards. At a minimum, calibration will be performed before work begins each morning and checked every four hours and approximately recalibrated during the sampling period. All results will be logged in the field data sheet for the sampling event. The probes of the field testing equipment that are in direct contact with the sample and samples jars will be rinsed three times with deionized water and once with a portion of the sample before measurements are completed on the sample.

Groundwater stabilization determination criteria in each well for the above mentioned parameters is presented in **Table 3**.

### 3.5 Well Sampling

After purging and measurement of field parameters are complete and the well has recovered, the well will be sampled. A list of each well characteristic is presented in **Table 4**. Field and laboratory parameters to be analyzed for are included in Table 1. The sampling of various laboratory analyses will be performed following EPA methods for Volatile (8260) and Metals (6010/7000).

Water samples will be collected in a manner which minimizes aeration. All sample containers and any preservative required will be provided by the laboratory prior to each sampling event. The required sample bottles and preservations methods are provided in **Appendix 6**.

When sampling volatile organic compounds with bailer the sampler will take caution to lower it slowly into the groundwater formation to avoid disturbance to static water level. If a pump is used, the pumping rate should be regulated to provide a slow continuous discharge rate of less than 100mL/minute. Sample vials for volatile organic analysis should be filled so that no headspace or bubbles remain in the bottles after capping.

Sampling will be delayed if inclement weather conditions, such as heavy rain or high winds occur. Such conditions may jeopardize the integrity of the samples and field instruments. The sampling will be resumed as early as possible as conditions allows.

#### 3.5.1 QA/QC Samples

Prior to the sampling of the wells, Quality Assurance and Quality Sample (QA/QC) protocols will be followed to assure that the activities are conducted under strict compliance to the Methods for VOC and Inorganics (Metals) under EPA 8260 and 6010/7000 methods. To accomplish this task the following samples will be collected:

- Field Trip Sample- for VOC analysis (provided by Pace)
- Field Blank Sample-for VOC analysis (water provided by Pace)
- Equipment Blank- for VOC and Metals (if no disposable bailer is used)
- Duplicate sample-Each sample will be collected with a duplicate and labeled with suffix "D".

#### 3.5.2 Water Samples

After collection of all QA/QC samples, water samples collected via bailer or pump will be transferred to correspondent crystal 40 ml vials (2 at a minimum) for VOC's and to 1 bottle of High Density Polyethylene (HDPE) of 500 ml for Inorganics (Metals). Samples will be labeled

with monitoring well prefix information such as Santa Isabel Landfill Groundwater Monitoring Well (**SIGWMW-**) followed by well number. A duplicate sample of the VOC's vials will be collected for each well. This duplicate will be labeled by adding the letter "**D**" as in duplicate.

### 3.6 Sample Containers, Preservation and Shipment

#### 3.6.1 Sample Documentation and Chain of Custody Forms

A sample collection form and Chain of Custody form (COC) provided by the selected laboratory, will be completed for each sample as presented in **Appendix 1** and the COC as presented in **Appendix 7**. The sample collection form will be completed and placed in the operating record. The following information will also be recorded in the field logbook:

- Property (facility) sited code, sample code, sample point I.D. and other identifiers;
- Date, clock time, and time elapsed (if greater than one hour) from start to finish of sampling;
- Presence/absence of immiscible layers;
- Depth to groundwater from the designated measuring point (top of well pipe, etc.) along with the time measured;
- Information regarding purging of the well prior to sampling;
- Field results including, Ph, Temperature, specified conductance, and turbidity measurements;
- Sampling methods used, such as bailer, bladder pump, etc (equipment material will be noted);
- Type of sample, well sampling sequence, sample container type, preservatives used, parameters requested and other pertinent information (i.e. sampled in conjunction with regulatory authorities);
- Field observations and sampling conditions (i.e. weather conditions);
- Appearance of sample, such as color, turbidity, sediment, etc;
- Internal temperature of field and shipping containers;
- Name of transporter and name of laboratory to perform the analyses; and
- Samples identification and signature.

Strict Chain of Custody procedures will be adhered to for all samples and recorded on a Chain-of Custody (COC) form provided by the laboratory. From the time the sample is collected until the issuing of the analytical laboratory results, the samples will be in the custody of assigned personnel. In order to maintain custody, the samples will either be:

- In sight of the assigned custodian;
- Locked in a tamper proof location; or
- Sealed with tamper proof seal.

A written record of the transfer of samples will be maintained and logged in the COC.

Transferees should sign and record the date and time on the Chain of Custody form. The number of custodians in the chain of possession will be as few as possible. The completed Chain of Custody form will be sealed in the sample shuttle and transported to the laboratory. Upon receipt by the lab, the seal will be broken, and the condition of the samples, date, and time will be recorded in the form by the person receiving the sample.

Sample containers will be labeled with the project name and number, sample identification, date and time of sample collection, required analyses, preservatives, and the sampler's initials. The information on the sample label will exactly match the information that is recorded on the Chain-of Custody form.

All samples will be placed in appropriate, containers, and then preserved as specified in **Appendix 5**. After sampling and labeling, the containers will be placed in shuttles, packed with bagged ice or other coolant and packing materials, sealed, and sent via overnight courier or hand delivered to the laboratory.

Each shuttle will contain a Chain of Custody listing the contents of that shuttle. Shuttles containing vials for volatile organic analysis will also be packed with the trip blank supplied with the sample bottles.

#### **4.0 LABORATORY**

The laboratory that will be used to perform the EPA analytical methods is Pace Analytical (Pace) based in Guaynabo, P.R. Pace manager Juan Redondo will be the designated Pace contact for this project. The Standard Operating Procedures followed by Pace are provided in **Appendix 8**.

#### **5.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)**

QA/QC samples will be collected and analyzed regularly to evaluate accuracy and precision data. The following is a summary and description of the types of QA/QC samples used:

- Trip Blanks are volatile organic samples originating at the laboratory and traveling inside the shuttles as each well is sampled. They can be used to determine if any constituents reported in the sample are artifacts of the transportation process.
- Duplicate samples are collected to determine if the analytical methodology is capable of producing reproducible (precise) results.

QA/QC samples are used to gauge the validity and usefulness of the analytical data and to determine if data quality objectives are being met. One trip blank will be provided with each

sample shuttle used to carry samples for volatile organic compound analysis. There will also be one field duplicate sample collected during each sampling event from a well selected at random.

## **6.0 ANALYTICAL PROCEDURES AND QUALITY CONTROL**

The analytical procedures and laboratory quality control to be used under this plan are provided in **Appendix 8**. These standard operating procedures are based on EPA approved methodology. These procedures cover all of the analyses listed in **Appendix 1** and **2** of the Non-Hazardous Solid Waste Management Regulation of the Puerto Rico Environmental Quality Board as required under Rules 708 and 709.

## **7.0 RECORDKEEPING AND REPORTING**

All monitoring, testing and analytical data obtained under this plan will be entered into the operating record. If GESPR determines that there is a statistically significant increase over background value for one or more of the parameters or constituents listed for volatiles or metals, a notice to this effect will be sent to EQB and a copy of this notice placed in the operating record. In addition, GESPR will conduct an investigation and any modification to the monitoring plan to the EQB within 90 days of this notice for review and any modification to the monitoring plan to the EQB within 90 days of this notice for review and approval.

GESPR will conduct the activities based on the tentative schedule present on Table 2. Based on the proposed schedule, the first landfill groundwater well monitoring plan activities report will be submitted 15 days after samples are analyzed by a chemical laboratory and results are provided signed and seal by a P.R. Licensed Chemist.

## **8.0 HEALTH AND SAFETY**

The sampling required under this plan will be conducted in a manner protective of the field team's health and safety. The field activities conducted at the site will, therefore, be guided by the procedure discussed in the GESPR Health and Safety Plan provided in **Appendix 9**.

## **9.0 IMPLEMENTATION SCHEDULE**

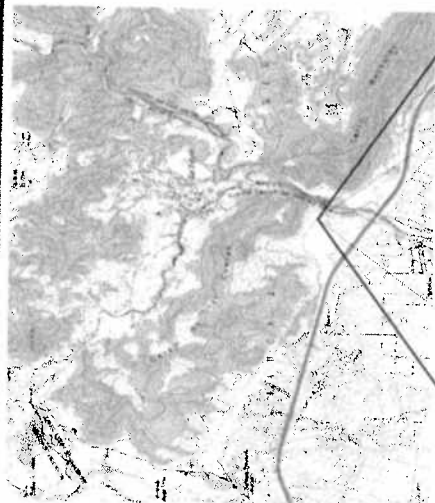
The proposed Landfill Groundwater Monitoring Plan (LGWMP) will be implemented as soon as the EQB reviews and approves the plan. The proposed schedule is included in Table 2.

## FIGURES

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**TOPOGRAPHIC MAP**



**SANTA ISABEL LANDFILL PHOTO**

PREPARED: O.Negrón	<b>SANTA ISABEL LANDFILL MAP AND PHOTO</b>		
REVISED: O.Negrón			
APPROVED: I.Perera	LANDFILL GAS TECHNOLOGIES CORP.		
	Groundwater & Environmental Services Puerto Rico, LLC 1418 Ave. Ponce De León, Suite 201, San Juan PR 00907		
<b>NORTE</b> 	SCALE NTS	DATE: 6/7/2012	FIGURE: 1

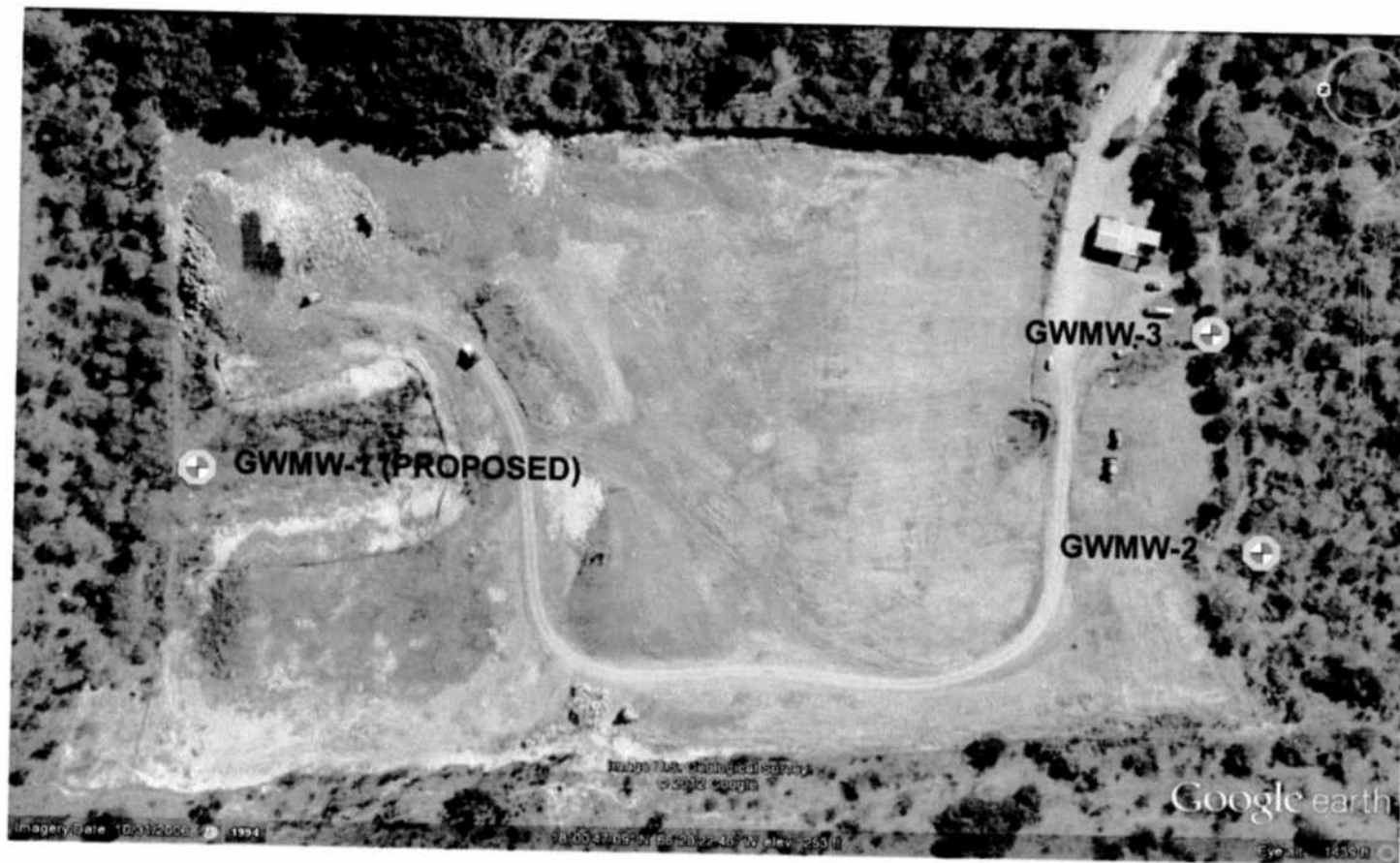


**LEGEND:**



SAMPLING NETWORK

PREPARED: O.Negrón	<b>HORMIGUEROS LANDFILL GROUNDWATER MONITORING WELL NETWORK</b>		
REVISED: O.Negrón			
APPROVED: I.Perera	LANDFILL GAS TECHNOLOGIES CORP.		
	Groundwater & Environmental Services Puerto Rico, LLC 1418 Ave. Ponce De León, Suite 201, San Juan PR 00907		
<b>NORTH</b> 	SCALTE NTS	DATE: 6/7/2012	FIGURE: 2



**LEGEND:**



WELLS TO BE SAMPLED

PREPARED: O.Negrón	<b>LOCATION OF PROPOSED MONITORING WELLS FOR SAMPLING</b>		
REVISED: O.Negrón			
APPROVED: I.Perera	LANDFILL GAS TECHNOLOGIES CORP.		
	Groundwater & Environmental Services Puerto Rico, LLC 1418 Ave. Ponce De León, Suite 201, San Juan PR 00907		
<b>NORTH</b> 	SCALE NTS	DATE: 6/7/2012	FIGURE: 3

## TABLES

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**TABLE 1**

**GROUNDWATER WELL STABILIZATION CRITERIA**  
**For Santa Isabel Landfill Groundwater Monitoring Plan 2012**

Parameter	Stabilization Criteria	Reference
pH	+/-0.1	Puls and Barcelona, 1996 Wilde et al., 1998
Specific Electric Conductance	+/-3%	Puls and Barcelona, 1996
Temperature	+/-1°C	USCOE (1998)
Turbidity	+/- 10% (when turbidity is greater than 10 NTUs)	Puls and Barcelona, 1996 Wilde et al., 1998
Oxidation-Reduction Potential (ORP)	+/- 10 millivolts	Puls and Barcelona, 1996
Dissolved Oxygen (DO)	+/- 0.3 milligrams per liter	Wilde et al., 1998

**TABLE 2**  
**SRS SANTA ISABEL LANDFILL**  
**VOC LIST FOR METHOD 8260**

NAME	CAS NO.	MCL	RL (mg/L)
ACETONE	67-64-1	4	0.01
BENZENE	71-43-2	0.005	0.005
BROMODICHLOROMETHANE	75-27-4		0.005
BROMOFORM	75-25-2	0.7	0.005
BROMOMETHANE	74-83-9	0.05	0.005
2-BUTANONE (MEK)	78-93-3		0.01
CARBON DISULFIDE	75-15-0	4	0.005
CARBON TETRACHLORIDE	56-23-5	0.005	0.005
CHLOROBENZENE	108-90-7	0.7	0.005
CHLOROFORM	67-66-3	0.005	0.005
CHLOROMETHANE	74-87-3	0.2	0.005
1,2-DIBROMO-3-CHLOROPROPANE	96-12-8		0.005
DIBROMOCHLOROMETHANE	124-48-1		0.005
1,2-DIBROMOETHANE (EDB)	106-93-4		0.005
DICHLORODIFLUOROMETHANE	75-71-8		0.005
1,1-DICHLOROETHANE	75-34-3	0.007	0.005
1,2-DICHLOROETHANE	107-06-2	0.005	0.005
1,1-DICHLOROETHENE	75-35-4	0.007	0.005
CIS-1,3-DICHLOROPROPENE	156-59-2	0.005	0.005
TRANS-1,2-DICHLOROETHENE	156-60-5		0.005
1,2-DICHLOROPROPANE	78-87-5		0.005
CIS-1,3-DICHLOROPROPENE	10061-01-5		0.005
TRANS-1,3-DICHLOROPROPENE	10061-02-6		0.005
ETHYLBENZENE	100-41-4		0.005
2-HEXANONE	591-78-6		0.01
ISOPROPYLBENZENE (CUMENE)	98-82-8		0.005
METHYL ACETATE	79-20-9		0.01
METHYLENE CHLORIDE	75-09-2	0.005	0.005
4-METHYL-2-PENTANONE (MIBK)	108-10-1		0.01
METHYL-TERT-BUTYL ETHER	1634-04-4		0.005
STYRENE	100-42-5	0.1	0.005
1,1,2,2-TETRACHLOROETHANE	79-34-5		0.005
TETRACHLOROETHENE	127-18-4		0.005
TOLUENE	108-88-3	1	0.005
1,1,1-TRICHLOROETHANE	71-55-6	0.005	0.005
1,1,2-TRICHLOROETHANE	79-00-5	0.005	0.005
TRICHLOROETHENE	79-01-6	0.002	0.005
TRICHLOROFLUOROMETHANE	75-69-4		0.005
VINYL CHLORIDE	75-01-4	0.002	0.005
M&P-XYLENE			0.005
O-XYLENE	95-47-6		0.005

**TABLE 2**  
**Inorganic Compounds**  
**Metals Method 6010/7000**

NOMBRE	CAS NO.	MCL	RL (mg/L)
ANTIMONY	7440-36-0	0.06	0.06
ARSENIC	7440-38-2	0.05	0.01
BARIUM	7440-39-3	2	0.2
BERYLLIUM	7440-41-7	0.004	0.005
CADMIUM	7440-43-9	0.005	0.005
CHROMIUM	7440-47-3	0.1	0.01
COBALT	7440-48-4		0.01
COPPER	7440-50-8	1.3	0.01
LEAD	7439-92-1	0.015	0.005
NICKEL	7440-02-0	0.1	0.04
SELENIUM	7782-49-2	0.05	0.035
SILVER	7440-22-4		0.01
TALLIUM	7440-28-0	0.002	0.01
VANADIUM	7440-62-2		0.05
ZINC	7440-66-6	5	0.02

**TABLE 3  
HORMIGUEROS LANDFILL  
GROUNDWATER MONITORING NETWORK**

DESCRIPTION OF WELL CONDITION	WELL I.D. AND TYPE		
	COMPLIANCE	COMPLIANCE	COMPLIANCE
	W-1	W-2	W-3
<b>GROUNDWATER PRESENCE DATA</b>			
DEPTH OF WATER BEFORE DEVELOPMENT	NOT FOUND	42FT	42FT
DEPTH OF WATER AFTER DEVELOPMENT		N/A	N/A
<b>WELL CONSTRUCTION DATA</b>			
DEPTH OF WELL	OBSTRUCTED	77FT	77FT
HEIGHT OF CASING	2 INCHES	12 INCHES	36 INCHES
WELL DIAMETER	2 INCHES	2 INCHES	2 INCHES
LENGTH OF WATER COLUMN	N/A	35FT	35FT
VOLUME OF WATER IN COLUMN	N/A	5.70GAL	5.70GAL
VOLUMES TO BE REMOVED FROM WELL	N/A	18 GAL	18 GAL



**TABLE 4**

**Implementation Schedule  
Santa Isabel Landfill Groundwater Monitoring Plan**

Activity	Date	Notes
Submittal of Work Plan to EQB	June 16, 2012	
EQB Evaluation, Comments and Approval	July 16, 2012	
Developing and Sampling of 3 wells from the Network	July 16, 2012	First Year Event
Report of Sampling Activities	July 30, 2012	
Developing and Sampling of 3 wells from the Network	October 15, 2012	Second Yearly Event
Report of Sampling Activities	October 30, 2012	